EUGENIA O'KELLY, PhD

System Engineering, Risk Management
Oxford University

My work focuses on improving how organizations understand and manage risk, particularly in healthcare, national security, and other high-stakes domains where human lives are on the line. I bring together systems engineering, human factors, and emerging technologies such as AI to design practical tools and frameworks that enable effective risk management. At the core of my research and applied projects is a commitment to saving lives and fostering a more stable, resilient society.

EDUCATION

OCT 2018 – OCT 2023 **Cambridge University, Cambridge, UK**
Department of Engineering
Doctorate of Philosophy

SEP 2010 – JUNE 2014 **Stanford University, Palo Alto CA, USA**
GRADUATED WITH HONOURS AND DISTINCTION
Science, Technology, and Society
Bachelors of Art

EXPERIENCE

OCT 2023 – PRESENT

Oxford University
Research Fellow at Strategy, Statecraft, and Technology Centre

Investigating the state of risk assessment in national security and the implications of AI risk-assessment tools on decision making and strategy. How will artificial intelligence improve our ability to assess and respond to high-risk situations? How can machine learning best improve risk analysis and what issues will the new technology introduce?

FEB 2020 – NOV 2021

Cambridge University
Primary Investigator

Primary investigator for the Cambridge Respiratory Protection Engineering Task Force (www.facemaskresearch.com). Led an international group of ten researchers and research assistants in providing answers to critical questions about civilian face masks and protection through original research. Responsible for recruiting and managing fellow experts, obtaining funding and laboratory equipment, and finalizing the research agenda. Collaborated with other research groups from around the world, including three in badly hit central and south American countries. Our published research was used by the CDC to help inform public policy and cited in updated guideline documents.

AUG 2019 – FEB 2020

United States Special Operations Command (SOCOM)
Research and Development Project Lead

Developed prototype for two-way, covert medical protocol-management-system to be used in remote and covert operations. Tasked with creating a unified design for use by all branches of the US Special Forces. Project concluded with senior buy-in by Army, Navy, and Marine special forces medic corps.

AUG 2016 – AUG 2019

EOK Medical Consulting
Founder and Lead Designer

Founded surgical simulator and educational software development consulting company. Project outcomes included reducing voluntary post-operative narcotic use by over 50% and preoperative anxiety by over 70%. Designed and developed surgical simulators for doctors at top US hospitals including John Hopkins and Stanford University Hospital to use in teaching new techniques.

MAY 2014 – JUNE 2016

ArtCorgi
Chief Technical Officer

Hired as software developer and soon promoted to Chief Technical Officer of a e-commerce startup selling mid-market art commissions. During my time, the company grew from an early stage venture, was accepted to a top Silicon Valley accelerator program, and began to compete as one of the top players in the market.

DEC 2010 – JUNE 2011

Department of Veterans Affairs & UCSF Hospital
UX Design Intern

Assisted in the design of a post-deployment mental health treatment platform which provided free, anonymous counseling and group therapy to veterans. Assisted in finding ways to duplicate mission culture in an online environment. Conducted field studies at Camp Pendleton.

SEP 2010 – APR 2011

UCSF Hospital, Langley Porter
Software Designer Intern

Was responsible for creating and managing interactive digital health education projects related to teen wellness. Was responsible for a group of five fellow interns and assigned tasks to complete projects. Also responsible for assessing patient need and prioritizing content development accordingly.

NOV 2007 - MAY 2010

Sirius Games
Chief Executive Officer

During high school, founded a company to develop video games to teach foreign language to middle and high school students. Company was a winner of the national NAWBO prize for young entrepreneurs.

SELECTED PUBLICATIONS

(in peer review). O'Kelly, E. Moral Injury and the Impact of Decision Making AIs.

(2024). O'Kelly, E. AI Powered Threat Assessment: The Importance and Potential of Trilateral Risk Communication. *Safeguarding Australia, Canberra, Australia https://safeguardingaustraliasummit.au/summit-2024*

(2024). O'Kelly, E. National Security Risk Assessment: Failure and the Potential for AI. *Emerging Threats, Oxford, UK https://emergingthreats.co.uk/national-security-risk-assessment-failure-and-the-potential-for-ai-eugenia-okelly-phd27-05-24/ PASS: CCW2024*

(2024). O'Kelly, E. The Role of AI In Patient Engagement for Chronic Disease Research. *Healthcare 2.0, Vegas, NV*

(2023). O'Kelly, E. Improving Interview and Focus-Group Protocol for the Collection of Systems Data from High-Security Military Personnel. *NDIA Human Systems Conference 2023*

(2023). O'Kelly, E. The Role of Risk Assessment Tools in Assessing Patient-Safety Risks. *Doctoral dissertation doi.org/10.17863/CAM.96939*

(2022). O'Kelly, E., Arora, A., Pirog, S., Ward, J., Clarkson, P. J. Face Mask Fit Hacks: Improving the Fit of KN95 Masks and Surgical Masks with Fit Alteration Techniques and Devices. *PLOS ONE doi:10.1371/journal.pone.0262830*

(2022) O'Kelly, E., Arora, A., Pirog, S., Ward, J., Clarkson, P. J. Experimental Measurement of the Size of Gaps Required to Compromise Fit of an N95 Respirator. *Disaster Medicine and Public Health Preparedness*
doi:10.1017/dmp.2022.23

(2021). O'Kelly, E., Arora, A., Pirog, S., Ward, J., Clarkson, P. J. Comparing the fit of N95, KN95, surgical, and cloth face masks and assessing the accuracy of fit checking. *PLOS One*
doi:10.1371/journal.pone.0245688

(2021). *Takenoshita, M. O'Kelly, E (2021). Quantity and Type of Distractions in Obstetric Anesthesia. *Obstetic Anesthetist' Association Annual Meeting**

(2021). Komashie, A., Ward, J., Bashford, T., Dickerson, T., Kaya, G. K., Liu, Y., . . . Clarkson, P. J. (2021). Systems approach to health service design, delivery and improvement: A systematic review and meta-analysis. *BMJ Open, 11(1)*
doi:10.1136/bmjopen-2020-037667

(2020). O'Kelly, E., Arora, A., Pearson, C., Ward, J. R., Clarkson, P. J. Performing qualitative mask fit testing without a commercial kit: Fit testing which can be performed at home and at work. *Disaster Medicine and Public Health Preparedness.*
doi:10.1017/dmp.2020.352

(2020). *Arora, A., O'Kelly, E. Evaluating Respiratory Protection Options for Civilian Use. *Heathcare Leadership Academy Conference**

(2020). O'Kelly E, Pirog S, Ward J, Clarkson PJ. Ability of fabric face mask materials to filter ultrafine particles at coughing velocity. *BMJ Open.*
doi:10.1136/bmjopen-2020-039424

(2019). O'Kelly E. Faster, Safer, and Easier: A Requirements Analysis for Covert Medical Information Access Systems. *Special Operations Command Surgeon's Conference*

* These are publications by students I have supervised. I encourage my students to publish and provide one-on-one support throughout the process.

RESEARCH & INDUSTRY COLLABORATIONS

UNIVERSITY OF THE BALEARIC ISLANDS 2021	**ADEMA University School Mask Brace** Assisted in the design, development, and testing of face mask fit devices for improved user protection.
UNIVERSITY OF GUADALAJARA 2020	**Mexican & South American Face Mask Task Force** Provided advice and testing for public service project. Goals involved developing a safe, inexpensive, and effective mask design for use by Mexican and South American citizens.
ROBO INVESTOR REPORTS 2015	**Robo Investing Services White Paper** Conducted systematic review of user experience and risks assignment process of leading artificial intelligence investing services on behalf of local investment firm.
STANFORD UNIVERSITY 2014	**Civil Engineering Department** Worked with industry partner Obayashi Global under the direction of Calvin Kam to analyze the use of VDC and its impact on project safety and efficiency.
STANFORD UNIVERSITY 2013	**Undergraduate Honors Thesis** Honors thesis on potential applications of non photo-realistic rendering to improve efficiency and reduce cost.
STANFORD UNIVERSITY	**Center for Automotive Research at Stanford**

2013   Research assistant on project evaluating safety of new automotive user interfaces.
Contribution included the design and programming of new interface test conditions.

ADVANCED TRAINING & CERTIFICATIONS

PROJECT & TEAM MANAGEMENT

2022   **University of Colorado - Researcher Management and Leadership Certificate**
Management and recruitment of research teams. Responsible fiscal and strategic research management.

2022   **University of Pennsylvania - Building High Performing Teams**
Diagnosing and handling issues which inhibit team productivity

2018   **London School of Economics - Certificate in Managerial Finance**
Professional certificate in managerial finance

RESEARCH ETHICS & DATA MANAGEMENT

2022   **John Hopkins University - Healthcare Data Security, Privacy, and Compliance**
Types of healthcare data, using patient records for research, relevant privacy standards, and HIPPA compliance

2022   **The Global Health Network - Ethical Review Board Training**
Training and certification to perform ethics review of social health research

2021   **UKRI Medical Research Council - Good Research Practice Certification**
Good research practice course and certification

2019   **American Medical Association - Human Subject Certification**
Course and certificating in in protecting human research participant

TEACHING AND SUPERVISION

NOV 2020 – NOV 2021

Honors Student Research Supervisor

In charge of teaching and supervising cohorts of undergraduate and high school students in advanced honors research placements. Responsibilities included (1) preparing and delivering instruction on research methods and ethics, (2) providing one-on-one mentoring according to students level of knowledge and expertise, and (3) assisting students in the completion of both primary and secondary research activities.

SEP 2020 – OCT 2020

Design and Development of Research Skills & Ethics Online Module

Designed and developed an online training module for undergraduate students focused on the ethical considerations and practical application of observational methods in health research. Module was used by students from engineering, psychology, and marketing in preparation for advanced undergraduate work in health-related projects.

DEC 2019 – MAR 2020

Supervisor for Medical Student Selected Component

Supervised three fourth-year medical students from the University of Cambridge Clinical School of Medicine. Responsibilities included preparing and delivering lectures on systems engineering as well as directing students in the development and completion of original research.

AWARDS & RECOGNITION

2024   **Award for Outstanding Leadership in the Healthcare Industry**
        Healthcare 2.0 Conference, Vegas, NV

2020   **Recognition from the Vice Chancellor of the University of Cambridge**
        For work done on COVID19 protection

REFERENCES

Professor John Clarkson

POSITION   Professor
EMPLOYER   Department of Engineering
            University of Cambridge
EMAIL   pjc10@cam.ac.uk

Dr David Kelley

POSITION   Donald W. Whittier Professor in Mechanical Engineering
EMPLOYER   Department of Engineering
            Stanford University
EMAIL   dkelley@ideo.com